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| APPLICATION NO.                                                                                           | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------------------------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/532,095                                                                                                | 04/21/2005  | Chang Hae Kim        | 054358-5040         | 6491             |
| 9629 7590 06/26/2008<br>MORGAN LEWIS & BOCKIUS LLP<br>1111 PENNSYLVANIA AVENUE NW<br>WASHINGTON, DC 20004 |             |                      |                     |                  |
| EXAMINER<br>KOSLOW, CAROL M                                                                               |             |                      |                     |                  |
| ART UNIT                                                                                                  |             | PAPER NUMBER         |                     |                  |
| 1793                                                                                                      |             |                      |                     |                  |
| MAIL DATE                                                                                                 |             | DELIVERY MODE        |                     |                  |
| 06/26/2008                                                                                                |             | PAPER                |                     |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/532,095

**Applicant(s)**

KIM ET AL.

**Examiner**

C. Melissa Koslow

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 April 2008.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 14 and 16-18 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 22 April 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-850)  
Paper No(s)/Mail Date 3/12/08  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

This action is in response to applicants' amendment of 22 April 2008. The objection to the disclosure for informalities is withdrawn due to the amendment to the specification. The objection to the speciation, the 35 USC 112 rejections, the art rejections over canceled claims 1-13 and 15 and the rejection of claims 14, 17 and 18 over U.S. patent 6,982,045 have been withdrawn due to the amendments to the claims. The drawings were received on 22 April 2008. These drawings are acceptable. The terminal disclaimer filed on 22 April 2008 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of application 10/564,406 has been reviewed and is accepted. The terminal disclaimer has been recorded. The art rejection over U.S. patent 7,088,038 is withdrawn since this patent does not teach what is being claimed. The remaining art rejections have been modified in view of applicants' amendments to claims 14 and 17. Applicant's arguments with respect to the remaining rejections have been fully considered but they are not persuasive.

The articles cited in the information disclosure statement filed 12 March 2008 fail to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

The Chinese reference cited in the information disclosure statement filed 12 March 2008 has been considered with respect to the provided English abstract.

Claim 14 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described

in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The newly claimed first and second phosphors are not disclosed in the originally filed disclosure and thus are new matter.

The fact that one of ordinary skill in the art could deduce the added amendment does not meet the written description requirement of 35 U.S.C. 112, which requires that the claims be described in the originally filed disclosure in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

This claim is indefinite since it is unclear if the phosphor comprises a first phosphor, a second phosphor and strontium silicate or if the strontium silicate is the first or second phosphor. The specification teaches the peak wavelength range of the strontium silicate phosphor is 520 to 550 nm and this range does not correspond with the ranges of the first and second phosphor.

The Examiner is interpreting claim 14 to mean that the strontium silicate phosphor is the second phosphor, for the purposes of the art rejections.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 14, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 6,621,211.

This reference teaches a white light LED chip comprising a long wavelength UV LED, a blue phosphor which emits light in the range of about 420 to about 480 and an europium alkaline earth silicate phosphor having the general formula  $M_2SiO_4:Eu^{2+}$ , where M is at least one of Ba, Ca and Sr. Column 7, lines 20-34 teaches that this phosphor has the formula  $Sr_{2-x}SiO_4:xEu^{2+}$ , where  $0 < x \leq 0.2$  and that this phosphor emits light of about 580 nm. This light emission falls within the claimed range and the amount of europium overlaps that claimed. The wavelength range of the blue phosphor overlaps that claimed. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). The figures and section 7 "the Illumination System" show that the LED and phosphor are molded by a transparent resin. The reference suggests the claimed phosphor and device.

Claims 14 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 6,956,247 or 7,088,038.

U.S. patent 6,956,247 and 7,088,038 both teach a white light LED chip comprising a long wavelength UV LED, and a phosphor blend of a red phosphor, a blue phosphor, which emits light in the range of about 420 to 480 and either a green or yellow phosphor, where the LED is placed in a reflection cup and the phosphor and LED are molded by a transparent resin. The blue phosphor emission range overlaps that claimed. These references teach the yellow or green phosphor can be an europium alkaline earth silicate phosphor having the general formula  $M_2SiO_4:Eu^{2+}$ , where M is at least one of Ba, Ca and Sr. While the references do not teach the amount of europium, it is well known in the art, as shown by the references of record, that the

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amount of europium that effect to activate the alkaline earth silicate host and that this amount ranges from greater than 0 up to 0.2, which overlaps the claimed range. Thus the references suggest that the device contains a phosphor having the formula  $\text{SrSiO}_4:\text{Eu}^{2+}$ , where the amount of europium is greater than 0 up to 0.2. The amount of europium overlaps that claimed. Since the taught phosphor formula overlaps that claimed, one of ordinary skill in the art would expect the emission range of the taught phosphor to overlap that of the claimed phosphor, which is about 520 to 550 nm, absent any showing to the contrary. Accordingly, one of ordinary skill in the art would expect the taught phosphor to have an emission spectrum that overlap the claimed range of 540-580 nm, absent any showing to the contrary, since the emission range of the claimed phosphor overlaps that claimed and the taught phosphor would be expected to have an emission range that overlaps that of the claimed phosphor. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). The references suggest the claimed device.

Applicants argue that the references do not teach the added first and second phosphor; but as discussed above, the references do teach the claimed first and second phosphor. The rejections are maintained.

It should be noted that applicants' statement that yellow light has a wavelength of 540-580 nm is incorrect. The art and Physics recognized definition of yellow light is light having a wavelength in the range of about 570 to about 590 nm. The art and Physics recognized definition

of green light is light having a wavelength in the range of about 490 to about 570 nm. Thus the claimed second phosphor is not a yellow phosphor, but a green or a yellow-green phosphor.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/cmk/  
June 27, 2008

/C. Melissa Koslow/  
Primary Examiner  
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